

### ABSTRACT OF THE DISCLOSURE

Oral vaccine formulations are disclosed having microparticles sized such that at least 50% of the microparticles are less than 5  $\mu\text{m}$ , preferably less than 3  $\mu\text{m}$ , the microparticles containing antigen entrapped or encapsulated, such as by a solvent evaporation method, by a biodegradable polymer, such as poly (D,L-lactide-co-glycolide). Additionally, oral vaccine formulations are disclosed having nanoparticles sized such that at least 50% of the microparticles are less than 600nm, preferably less than 500nm, the nanoparticles containing antigen entrapped or encapsulated, such as by a coacervation method, by a biodegradable polymer, such as poly (D,L-lactide-co-glycolide). Protective vaccine formulations containing the *B. pertussis* antigens PTd or a combination of PTd and FHA are provided.